

Date: Wed, 3 Mar 93 00:00:20 PST  
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>  
Errors-To: Info-Hams-Errors@UCSD.Edu  
Reply-To: Info-Hams@UCSD.Edu  
Precedence: Bulk  
Subject: Info-Hams Digest V93 #278  
To: Info-Hams

Info-Hams Digest                      Wed, 3 Mar 93                      Volume 93 : Issue 278

Today's Topics:

                                    2m Beam  
                            2 m handhelds wanted...  
Ground planes and vertical dipoles (3 msgs)  
                            license processing time  
                                    STRAIGHT KEYS  
                            Surplus (was Clinton)  
                                    TH-28A  
The first Icom R71 with 1024 memories  
Wanted: Heathkit SB-xxx CW Xtal filter

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>  
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: Tue, 2 Mar 1993 09:00:00 GMT  
From: pa.dec.com!engage.pko.dec.com!nntpd.lkg.dec.com!nntpd2.cxo.dec.com!  
nuts2u.enet.dec.com!little@decwrl.dec.com  
Subject: 2m Beam  
To: info-hams@ucsd.edu

wejones@cbda7.apgea.army.mil (Bill Jones) writes:

>One additional unrelated question. How important is it to have a true  
>ground, when using a J-POLE antenna? I run my 2-meter packet rig off

A J-pole antenna, unlike a quarter wave verticle, does not need a ground  
plane if that's what you're asking.

73,  
Todd  
N9MWB

-----  
Date: 2 Mar 93 17:45:19 GMT  
From: swrinde!zaphod.mps.ohio-state.edu!howland.reston.ans.net!  
newsserver.jvnc.net!netnews.upenn.edu!netnews.noc.drexel.edu!coe.drexel.edu!  
jpw@network.UCSD.EDU  
Subject: 2 m handhelds wanted...  
To: info-hams@ucsd.edu

I would like to buy a 2m handheld (with autopatch capabilities).

If anyone has any suggestions as to specific model,  
I would really appreciate it.

Also, I would like the phone #s to ICOM, Kenwood, etc. so that I can get  
their brochures.

(I would love a 2m that also has the aviation bands, but I'm not sure that  
it is possible)

E-mail is most appreciated.

Joe Wetstein  
jpw@coe.drexel.edu

-----  
Date: 2 Mar 93 15:43:49 GMT  
From: ogicse!emory!gatech!kd4nc!ke4zv!gary@network.UCSD.EDU  
Subject: Ground planes and vertical dipoles  
To: info-hams@ucsd.edu

In article <14570668@hpnmdla.sr.hp.com> alanb@hpnmdla.sr.hp.com (Alan Bloom)  
writes:

>In rec.radio.amateur.misc, gary@ke4zv.uucp (Gary Coffman) writes:

>

>> To outlet

```
>>      |                               +-----+
>>      |   +---+ 3 wire                |         |
>> To   +---|   |-----|               |         |
>>Ant  =====|   |=====|           Radio  |
>>      +---+                               |         |
>>      |                               |         |
>>      | Lightning                       +-----+
```

```

>>      |  arrestor
>>      |
>>      -----
>>      ---
>>      -
>

```

>>This is common point grounding. The 3rd wire ground is attached to station  
>>ground and continued to the power box ground. Now there can't be a ground  
>>loop through your equipment because all cables are at equal potential at  
>>the common point.

>  
>If the power box is grounded, than the radio is grounded through the  
>third wire in the power cord. You still have a "ground loop".

Yes, but the loop current no longer passes *\*through\** your equipment. That's  
the purpose of common point ground window technique.

>By the way, I assume this is why the Alpha Delta brand lightning  
>arrestors isolate the coax shield from the ground connection.  
>(Presumably the arresting action is to connect the shield to ground  
>in the event of a lightning strike.) Anybody know if this is the case?

It does not. And this is a major fault of the Alpha Delta design. Only  
the center conductor is connected to the gas discharge tube, which is  
then connected via the "isolated" ground terminal to an earth ground.  
This leaves you completely unprotected from a lightning current flowing  
down the shield of your coax. This is a really horrible design.

Polyphaser does it right. They have a copper block with ground foot  
through which the coax suppressor passes. The gas tube is again only  
connected to the center conductor, but is shorted directly to the  
copper block. This nulls the differential current in the coax, and  
the copper block and foot take the common mode current to earth  
ground. *\*If\** these suppressors are used with a ground "window"  
plate, all wires entering and leaving your station will always  
be at the same potential (minus the gas tube firing potential).  
This prevents any current loops in your equipment that can cause  
damage.

Gary

--

Gary Coffman KE4ZV		You make it,	gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.	uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!	emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244			

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Date: Tue, 2 Mar 1993 15:29:25 GMT

From: mvb.saic.com!unogate!news.service.uci.edu!usc!howland.reston.ans.net!gatech!  
kd4nc!ke4zv!gary@network.UCSD.EDU

Subject: Ground planes and vertical dipoles

To: info-hams@ucsd.edu

In article <14570666@hpnmdla.sr.hp.com> alanb@hpnmdla.sr.hp.com (Alan Bloom)  
writes:

>In rec.radio.amateur.misc, gary@ke4zv.uucp (Gary Coffman) writes:

>

>I wrote:

>>>Awhile back I found to my surprise that power company ground and earth  
>>>ground can be very different when things aren't working right.

>>>To make a very long story short, my house had about 60 volts AC on the

>>>"safety" ground and neutral wires EVEN WITH THE HOUSE MAIN BREAKER

>>>PULLED! After considerable investigative work, it turned out a

>>>neighbor, on the same pole transformer, had a defective 220V well

>>>pump. One side of the 220 line was shorted to the pump housing which

>>>was well-grounded to earth. In effect, the "ground" reference of

>>>the pole transformer was about halfway between center tap and one

>>>end, instead of at the center tap where it should be. I could get

>>>a big, fat spark (about 4A of current) by connecting a wire between

>>>my fuse box chassis and a separate 8 ft ground rod.

>>>

>>>The moral of the story is: use a 3-wire plug on your ham equipment

>>>to safety-ground the chassis. Do not depend on a separate earth

>>>ground. The tower/coax should be grounded to earth ground at some

>>>point before the coax enters the house (for lightning protection).

>

>>No, actually the moral of this story is to make sure your service

>>entrance wiring is in compliance with the NEC.

>

>It was and is.

>

>>...Sounds like your neighbor's box isn't grounded properly

>>either or the fault should have blown the pump breaker in his

>>panel.

>

>Nope. His house was grounded. My house was grounded. And the

>pole transformer was grounded at the pole. Even after I added a

>SECOND 8-foot ground rod at the fusebox, I was still measuring

>about 50VAC between the box and a high-impedance voltmeter probe

>jammed into the dirt. I assume my neighbor had a 20A breaker on

>the pump. Let's further assume that the short was causing 15A of

>current. This implies that the total ground impedance was  $R = E / I$

>= 60V / 15A = 4 ohms. I believe this is well withing NEC specs.

The pole transformer is not supposed to be grounded. The code says

that the only ground connection must be at the service entrance box to prevent ground loops. The "high line" neutral, connected to the transformer \*primary\* \*may\* be grounded as a lightning protective feature of the transmission system according to the code, but a \*secondary\* ground connection is prohibited.

You're calculating incorrectly as well. The calculation is neutral to your neighbor's "hot" with a 4 amp draw, your noted current "spark" in the original. That implies a ground impedance of >30 ohms between \*your\* ground rods which is outside NEC spec. The NEC says that two made grounds (eight foot rods) driven no less than 50 feet apart can have no more than 25 ohms between them. Assuming your original entrance ground rod and your separate ground rod were less than 50 feet apart, the impedance between them should be less than 25 ohms worst case. Since you could draw a 4 amp current, your entrance ground doesn't meet code.

>>There are two problems here, the potential shock hazard  
>>from the ground fault, and the fact that you and your neighbor  
>>have been paying the power company for that ground current draw.  
>>It's been passing through one or both of your meters for as long  
>>as the fault has been present.

>

>His meter only. The power meter doesn't measure ground currents.

The power meter measures current delivered to the house whether that current winds up in the ground or not. Depending on which phase was shorted at the neighbor's house, either you or he could have been paying for the current.

>>Now using the third wire connection wouldn't solve this problem,  
>>it just generates another, a ground loop \*through\* your equipment  
>>from the floating neutral in your power box to the amateur RF ground  
>>system. That's bad, and potentially damaging to your equipment and  
>>you.

>

>Huh? The "ground loop" exists whether the fault exists or not,  
>since the system is grounded at multiple locations. The reason  
>for using the 3-wire plug on all equipment is to ensure that all  
>metal in the house is at the same potential. The safety problem occurs  
>when you have one piece of metal grounded to house ground and another  
>grounded to earth ground. If there is a potential difference between  
>the two, you can get shocked if you touch both.

The problem is that the likely lowest impedance path between the grounds is through the third wire, through your equipment, and down the coax to the other rod. Thus you can have a current flowing \*through\* your equipment, which is potentially dangerous to the equipment. The third

wire ground is supposed to prevent potential differences from cabinet to cabinet in an installation, but if the made ground connection at the entrance panel is high impedance, a potential difference can exist between ground and the equipment cabinets. If you're grounded, say standing on a damp concrete floor, and touch the third wire grounded equipment, you can still get a shock. That's what GFIs are for.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

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Date: 2 Mar 1993 16:45:34 GMT

From: swrinde!zaphod.mps.ohio-state.edu!sdd.hp.com!hpscit.sc.hp.com!

rkarlqu@network.UCSD.EDU

Subject: Ground planes and vertical dipoles

To: info-hams@ucsd.edu

: >PULLED! After considerable investigative work, it turned out a  
: >neighbor, on the same pole transformer, had a defective 220V well  
: >pump. One side of the 220 line was shorted to the pump housing which  
: >was well-grounded to earth. In effect, the "ground" reference of  
: >the pole transformer was about halfway between center tap and one  
: >end, instead of at the center tap where it should be. I could get  
: >a big, fat spark (about 4A of current) by connecting a wire between  
: >my fuse box chassis and a separate 8 ft ground rod.

: >  
: >The moral of the story is: use a 3-wire plug on your ham equipment  
: >to safety-ground the chassis. Do not depend on a separate earth  
: >ground. The tower/coax should be grounded to earth ground at some  
: >point before the coax enters the house (for lightning protection).

:  
: No, actually the moral of this story is to make sure your service  
: entrance wiring is in compliance with the NEC. The NEC says that  
: your entrance breaker box must be grounded with a #8 wire to a  
: good earth ground, minimum of a made ground consisting of an 8  
: foot rod. Sounds like your neighbor's box isn't grounded properly

Maybe the moral is this:

1. The pump housing is obviously grounded better than the sum total of you and your neighbor's NEC grounds. Perhaps you ought to sink a ground rod into the well and connect it to the neutral power line.

Rick N6RK  
rkarlqu@scd.hp.com

— —

```
>> >I remember seeing a straight key kit that was really
>> >well made at a ham fest.. think it might have been
>> >something like a Kent.. does anyone have any idea
>> >what it might be.
>> >
>> >thanks and 73s
>> >Jeff, AC4HF
>
```

>>Kent Engineers in the UK. They make a really nice solid key. Similar  
>>to the old British Post Office 610 key. (Much better than the standard  
>>in my opinion). In the US, Palomar Engineers in CA sell them (about \$10  
>>I think). Pricy, but nothing around comes close to the quality or feel.  
>  
>At the Orange, Texas HAM-FEST, a vendor sold these in the bug, paddle  
>and straight key variety. Looking at these items, a person could easily  
>see how well constructed they are. But, none were \$100.00 US. All of  
>these were priced lower and also carried the description 'Kit'. I'll  
>try to see if anyone from the Orange, Texas ARC can tell me who the  
>vendor was and his address if anyone is interested.  
>eers in CA sell them (about \$10>I think). Pricy, but nothing around comes close  
to+'.+'.+...+...+~.~.p.+h.+\_.+R.+J.  
>---  
> . CNet 1.21 . The HAM Connection BBS, 409-833-1795 14.4K Hayes V.32BIS/V.42BIS  
>  
>----  
>| HAL 9000 BBS +1 313 663 4173 or 663 3959 | Four 14.4k v.32bis dial-ins |  
>| Public Access QWK-to-Usenet gateway | With PCBoard 14.5aM & uuPCB |  
>+-----+-----+-----+-----+  
>| Member of EFF, ASP, & ASAD | 1.5 Gigabytes Online | Service since 1988 |  
>

I would greatly appreciate it if you could find out the vendor. I  
would like to purchase the straight key in kit form immediately if  
it isn't too expensive.

Thanks and 73s

Jeff,AC4HF

--

Jeff M. Gold, AC4HF

Manager, Academic Computing Support  
Tennessee Technological University

-----  
Date: 2 Mar 1993 13:50:09 -0600  
From: agate!howland.reston.ans.net!zaphod.mps.ohio-state.edu!cs.utexas.edu!not-  
for-mail@ames.arpa  
Subject: Surplus (was Clinton)  
To: info-hams@ucsd.edu

Hello net.wisdom;

I was intrigued at the amount of surplus that must be available  
out there if some people receive three mailings a week. Could someone  
post or mail to me a list of some of the surplus houses that deal in radio  
gear? I don't need three fliers a week but a couple a month might be  
interesting. Also, I understand that the surplus auctions are in small



enough lots that individuals can easily afford them. That much I know only about general surplus but know nothing about surplus radio gear. Thanks, Dan

```
*-----*
* Daniel D. Todd      Packet: KC6UUD@WA6RDH.#nocal.ca.usa      *
*                      Internet: DDTODD@ucdavis.edu             *
*                      Snail Mail: 1750 Hanover #102            *
*                      Davis CA 95616                          *
*-----*
*      I do not speak for the University of California....    *
*      and it sure as hell doesn't speak for me!!            *
*-----*
```

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Date: Tue, 2 Mar 1993 19:50:36 GMT  
From: dog.ee.lbl.gov!hellgate.utah.edu!caen!zaphod.mps.ohio-state.edu!  
howland.reston.ans.net!gatech!concert!uvaarpa!murdoch!livia.acs.Virginia.EDU!  
jeg7e@network.UCSD.EDU  
Subject: TH-28A  
To: info-hams@ucsd.edu

In article <ui6qZB1w164w@jwt.UUCP> bbs-ksj@jwt.UUCP writes:  
>I've just purchased a Kenwood TH-78A, and would be very interested in  
>hearing about any extended receive modifications or undocumented key  
>combinations on the rig. If anyone has this information, please send  
>me a copy via e-mail at ksj7i@virginia.edu or bbs-ksj@jwt.uucp. Thanks.  
>  
> Scott Johnson KD4DCY

Congratulations Scott.

Now maybe you can return that equipment you stole from me?

--

```
-----
| Jon Gefaell, Computer Systems Engineer \      /___ | SILENCE = DEATH
| Security and Technology Planning R&D    \    /  /  | Homophobia is a
| I.T.C. Administrative Computing Services \  /  /  | Social Disease!
| The University, UVA. Carruthers Hall     \\/  /   | 73 de KD4CQY
|~~~~~\~~~~~|
-----
```

Date: Tue, 2 Mar 1993 14:26:03 GMT  
From: dog.ee.lbl.gov!hellgate.utah.edu!cs.utexas.edu!zaphod.mps.ohio-state.edu!

uwm.edu!linac!att!mcdchg!laidbak!tellab5!jwa@network.UCSD.EDU  
Subject: The first Icom R71 with 1024 memories  
To: info-hams@ucsd.edu

I think I have the first R71 with 1024 memories. I can access 32 banks of 32 memories by rotating the memory knob on the R71. I wired the Ld lead on the Willco memory board to the speech button on the front panel. By simply dialing a memory and then pressing the button, the radio jumps to a new bank of 32 memories.

One drawback is that the radio cannot scan all 1024 locations. During scanning, it stays in the same bank and scans the 32 memories. However, I figured it would be impractical to cover the full range. Because the radio scans so slow it would take forever!

I like the extended memory because now I can store the Top 500 Utility frequencies and still have plenty of room.

---

Jack Albert	Fellow Radio Buff
Tele (708) 512-7854	
Tellabs, Inc.	FAX (708) 852-7346
4951 Indiana Ave.	jwa@tellabs.com
Lisle, IL	
60532	Do things really go better with Coca-Cola?

-----  
Date: 2 Mar 93 15:22:02 EST  
From: titan.ksc.nasa.gov!vangen@ames.arpa  
Subject: Wanted: Heathkit SB-xxx CW Xtal filter  
To: info-hams@ucsd.edu

Does anyone have an old Heathkit SB-xxx series receiver lying around that I could buy just the CW xtal filter from? I have an SB-303 receiver with the SSB & AM filters, and would really like to get a CW filter.

Thanks,  
Scott

-----  
Date: 2 Mar 93 15:49:47 GMT  
From: ogicse!emory!gatech!kd4nc!ke4zv!gary@network.UCSD.EDU  
To: info-hams@ucsd.edu

References <C32wyo.Hoz@icon.rose.hp.com>, <1993Feb28.145814.11474@ke4zv.uucp>, <1mtilmINN9he@topaz.bds.com>

Reply-To : gary@ke4zv.UUCP (Gary Coffman)

Subject : Re: Ground planes and vertical dipoles

In article <1mtilmINN9he@topaz.bds.com> ron@topaz.bds.com (Ron Natalie) writes:

>> To outlet

```
>>      |                               +-----+
>>      |   +---+ 3 wire               |         |
>> To   +---|   |-----|             |         |
>> Ant  =====|   |=====|         | Radio   |
>>      +---+                               |         |
>>      |                               |         |
>>      | Lightning                       +-----+
>>      | arrestor
>>      |
>>      -----
>>      ---
>>      -
```

>

>Yuch...Don't butcher the cable. How about a real common ground

>

>

>

```
>      +---+                               +-----+
>      |   |                               |         |-----E (mains)
> To   +---|   |-----|             |         |
> Ant  =====|   |=====|         | Radio   |
>      +---+                               |         |
>      |                               |         |
>      | Lightning                       +-----+
>      | arrestor                       |
>      |-----|
>      -----
>      ---
>      -
```

Sorry, you haven't accomplished anything except to parallel the ground connection offered by the coax shield with another wire. You still have the current flow from the mains 3rd wire going through your equipment to the lightning, nee RF, ground. You don't want stray currents flowing over your equipment chassis where it can induce dangerous transients into your circuitry. Remember that in the case of a lightning strike the currents can reach 20,000 amps. The chassis resistance will drop hundreds or thousands of volts across the chassis. Any circuits connected to the chassis at opposite ends will see this potential. That's why you want to common the grounds *\*before\** they reach the

chassis.

Gary

--

Gary Coffman KE4ZV		You make it,		gatech!wa4mei!ke4zv!gary
Destructive Testing Systems		we break it.		uunet!rsiatl!ke4zv!gary
534 Shannon Way		Guaranteed!		emory!kd4nc!ke4zv!gary
Lawrenceville, GA 30244				

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Date: 2 Mar 93 19:41:53 GMT

From: ogicse!uwm.edu!cs.utexas.edu!torn!utzoo!henry@network.UCSD.EDU

To: info-hams@ucsd.edu

References <laird.730875415@pasture.ecn.purdue.edu>,

<1993Mar1.025618.9392@netcom.com>, <1993Mar1.040320.11929@muddcs.claremont.edu>

Subject : Re: Info needed on GPS

In article <1993Mar1.040320.11929@muddcs.claremont.edu>

bgribble@jarthur.claremont.edu (Bill Gribble) writes:

>I have heard from a friend whose company did some GPS software that the  
>C/A code, when averaged over time, yielded the same result as the P; that  
>is, C/A data points are evenly distributed around the value returned by  
>the higher-precision P code.

>

>Anyone care to verify or refute this?

According to Aviation Week & Space Technology, this is true at the moment but doesn't have to be true forever. The errors introduced by Selective Availability right now have a nice well-behaved distribution and average out to zero if you are patient enough, something that folks like geologists are happily taking advantage of. However, it *is* technically possible for DoD to introduce less benign types of error.

--

C++ is the best example of second-system| Henry Spencer @ U of Toronto Zoology  
effect since OS/360. | henry@zoo.toronto.edu utzoo!henry

-----

Date: 2 Mar 1993 19:38:40 GMT

From: swrinde!zaphod.mps.ohio-state.edu!darwin.sura.net!mojo.eng.umd.edu!

chuck@network.UCSD.EDU

To: info-hams@ucsd.edu

References <1993Feb17.153513.18447@cabot.balltown.cma.COM>,

<1m3ooqINNatc@mojo.eng.umd.edu>, <1993Mar2.000219.331@btree.uucp>

Subject : Re: Cellular Safety

In article <1993Mar2.000219.331@btree.uucp> bly@btree.uucp (Roger Bly) writes:  
>

>I recommend the Mitsubishi 22X (7 ounce pocketphone) to any heavy cellphone  
>user as I believe it is one of the safest. When in battery conserve mode,  
>it reduces the power as much as possible. You can program the display  
>to show you receive signal strength and xmit power. It really does  
>reduce power below the .6w often. It also can be programmed to xmit  
>only when you are talking (VOX).

ALL cellphones do this. They do it to reduce interference between adjacent  
cells. The cell's receiver measures your signal strength, and if it is  
above a threshold value, the cell transmits a message to your phone telling it  
to reduce its transmitter power.

>All the medical stuff I've read says its probably not a health risk  
>at 800-900Mhz other than RF heating to the scalp, but I try to keep

The head of FDA's Electromagnetic Risk Assessment group (Dr. Mays Swicord)  
recommends that you limit your usage of handheld cellphones until further  
studies are done.

...

>The user's manual for my 22X pocket cellphone suggests using  
>the phone with the antenna pulled out and holding the phone horizontally  
>across your face as you would a normal phone handset. If held correctly,  
>the 3" antenna will extend out radially from your head at a distance of  
>several inches.

This is a good idea. Please note, however, that the chassis of your  
handheld cellphone is part of the antenna (by design), and as such radiates  
a significant portion of the power.

...

>If I hold the phone incorrectly with antenna touching or almost touching  
>the side of my head, I do notice RF heating on my scalp and sometimes  
>headaches after extended use.

Ouch! This ought to be telling you something. Just heating your scalp  
a little bit won't give you a headache! Heating your brain is an entirely  
different matter. Your body goes thru a great deal of effort to keep your  
brain's temperature constant. Nature felt this was a very important task.

When I was doing Microwave Hyperthermia work, we used the 915MHz ISM band  
for our heaters because 915MHz penetrates human flesh to a depth of 6-7".  
There is no reason that 850MHz shouldn't penetrate even better.

73,

Chuck Harris - WA3UQV  
chuck@eng.umd.edu

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End of Info-Hams Digest V93 #278  
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